DOCUMENT RESUME

ED 195 262 IR 009 029

AUTHOR Becker, Ann
TITLE Implications of a Gestalt Approach to Research in Visual Communications.
PUB DATE Apr 80
NOTE 15p.: Paper presented at the Annual Convention of the Association for Educational Communications and Technology (Denver, CO, April 1980).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Cognitive Processes: *Communication Research: *Cues: *Learning Theories: Research Proposals: *Semiotics: *Visual Learning: *Visual Perception

ABSTRACT

Gestalt theory deals with the act of thinking and the construction of concepts in a situated manner, and, therefore, could be used to study how meaning is extracted from a visual display. Using the Gestalt framework of form cues and their usage patterns in the perception of, and learning from, visual media, researchers could study frame, line color and shape, and other form cues found in the creation of motion visuals. Current microcomputer technology now makes it possible to carry out a systematic comparative study describing the patterns of usage (codes) in various visual media. Methodology for such studies could be borrowed from the area of semiotics. This type of analysis attempts to describe the unknown parameters of a sign system by close observation of the existing medium under study. Studies of the compositional styles of novice television producers conducted with Navajo Indians and African natives in Liberia and Zambia have developed methods for reading form cues and their codes from documentary videotape. These methods can be further developed and applied to all motion visuals in order to learn how meaning is extracted from such displays. A bibliography of 20 items is provided. (BK)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED195262

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Implications of a Gestalt Approach to Research in Visual Communications

Ann Becker
University of Wisconsin-Madison

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Michael Simonson

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Presented at the Annual Convention of the Association for Educational Communication and Technology, Denver, April 1980.

IR009029

The success of behaviorism in the social sciences has depended, in large part, on a researcher's belief in his or her ability to isolate thought processes and to measure, with a fair amount of certainty, the products of thought. But if you believe, as does Suzanne Langer (1967) that thinking is an act which proceeds in fits and starts and is variously informed by such mental functions as memory, imagination and will, than the stimulus response paradigm looses some of its explanatory power. If you take an additional step and believe that imaging plays a major role in the act of thinking, you are confronted with another mental function that often defies isolation and measurement. Consider what psychologist Edward Titchner (in Arnheim, 1969) said in 1909 about imaging and thinking.

"My mind, in its ordinary operations, is a fairly complete picture gallery, not of finished paintings, but of impressionist notes. Whenever I read or hear that somebody has done something modestly, or gravely, or proudly or humbly or courteously, I see a visual hint of the modesty or gravity or pride or humulity or courtesy. The stately heroine gives me a flash of a tall figure, the only clear part of which is a bowed back."

In Titchner's view, image formation in the act of thinking is impressionistic. He would agree, I believe, with Langer that the functions of thought do not yield to isolation and measurement. Yet, Titchner's images have meaning which can still be communicated today. The combined words 'stately heroine' 'tall figure' 'steely grey skirt' allow us to form our own images and meaning is then communicated in a

situated sense. The image created, the picture in your mind, has in its entirety stimulated the formation of a concept.

One learning theory that deals with the act of thinking and the construction of concepts in a situated manner is Gestalt theory. Another word for Gestalt is form. Notice that Titchner's image was largely understood because of its form, because of what was included within the frame of his mental picture and what was excluded. Some psychologists who have long been confronted with the problem of accounting for haphazard imaging functions of the mind have applied gestalt theory. It has at various times been a favored paradigm in perception research. It does not force a researcher to isolate and measure mental functions, such as imaging, but allows him or her to consider them in a situated sense, as part of a whole.

In asking perceptual questions, gestaltists have explored the ability of the mind to organize haphazard information both visual and non-visual. The mind, they tell us, organizes visual information because of relationships between objects. Such relationships have been divided into categories of similarity, continuity, proximity and closure. The key words for gestaltists are form and meaning. The mind, they believe, extracts meaning by interpreting the form cues which are present in a visual display (Wilson, et. al., 1969). I would like to refer to those form cues as the smallest units of meaning in a visual display. Gestaltists believe, then, that we read these form cues. The ability of a viewer to read or decipher figure ground relationship is primary in distinguishing essential and incidental information. The ability of

a viewer to compare and contrast shapes employs the gestalt principles of similarity and proximity. The ability of a viewer to fill and correct shapes employes the gestalt principles of continuity and closure. Additional perceptual skills are needed, gestaltists point out, to interpret form and color constancy, size scaling, figure ambiguity and line alternation (Bloomer, 1979). Placement of the figure allows the viewer to exercise viewpoint and orientation skills. It is important to note that the smallest units of meaning, the form cues, are contained in the visual display itself. The mind in interaction with those units extracts meaning, so that the intuitive moment of conceptualization is less one of discovery and more one of interaction between mental skills and form cues. Current visual communication research employing gestalt principles either theoretically or methodologically havé helped subtract some of the "aha" from the intuitive moment of conceptualization.

Since the founding of the gestalt school of psychology by Wertheimer in the early 20's, stress has been placed on insightful learning (Wilson, et. al., 1969). Insight, in fact, was emphasized in the interpretation of the work Kohler and Yerkes with primates. Focus was placed on the discovery aspects of the chimpanzee's and gorilla's behavior. Yet, Yerkes himself discusses the steps which preceed insight. He describes first, a survey of the situation or display; second , hesitation and concentrated attention; third, trial and error; fourth, recurrent concentrated attention; and fifth, finally performance and repetition (in Wilson, et. al., 1969). Note that his concern was with the outward

behavior of the gorilla. From that behavior or motion, to be exact, he had to extrapolate the process of insightful learning. In that early stage of Gestalt research, he did not ask questions about the first and second steps, namely survey and attention that have been subsequently asked. One might have asked "as the gorilla surveyed the display, what form cues gave him the information he needed to proceed and which cues riveted his attention and facilitated his extraction of meaning from the situation."

Current visual communications researchers do ask such questions (usually not of gorillas); they ask questions about how viewers extract meaning from the form and content of visual displays. Those researchers who address themselves to questions of form and meaning, whether it is an investigation of obvious gestalt principles such as figure/ground, closure, proximity or an exploration of structure, codes, aesthetics or grammar of visual displays are employing gestalt theory. The central question is one of seeking the extraction of meaning from a visual display.

A popular way of defining the patterns which emerge from application of form cues in a visual display is to call these patterns codes (Barthes, 1977). Codes carry some of the infrastructure of a picture, but before I discuss codes, I would like to talk about those form cues that gain our attention. Researchers dealing with visual displays are often stymied by the amount of information within a frame. Methods for recording thousands of bits of information created by form cues appear almost impossible. Yet, the people who create the visual

displays, the artist, the photographer, the camera person, apply those form cues daily. They understand the patterns or codes of those cues, whether their understanding is intuitive or realized. To get inside each medium, to study the patterns of usage would help unpack some of the vital information about form cues and their relation to meaning. The task may still appear impossible, but patterns would be studied within the context of a question or hypothesis. (I will later describe some studies which do this.) Units of form or structure which communicate meaning in a visual display have been identified in art, photography and film as well as other visual media. Some of these cues are frame, line, color and shape. Rudolf Arnheim in Art and Visual Perception (1969) lists ten within a frame and John Kennedy (1974) lists seven methods of line representation to depict surface within a frame. In photography, borrowed, as well as unique cues are important. Some of them are frame, focal point, proximity, angle of approach and depth perception. Eleanor Gibson (1969) in her seminal work in perception stressed the importance of these form cues to the interpretation of photographs. Additional form cues are found in the creation of motion visuals. Cues operate in film and TV on three moving planes, the plane of the image, the plane of the geography of the space photographed and the plane of depth perception (Monaco, 1977). Problems of describing patterns of overlapping, convergence, relative size and density gradient become more complex. Problems of describing patterns unique to motion, cues such as panning, tilting, zooming and dollying; and switches such as cuts, fades, dissolves and superimpositions are not as complex.

We not only know form cues are present within a frame, but we know how we read them. We know that the bottom is more important than the top, that the left side of the frame is read first and that the bottom is stable and the top unstable (Monaco, 1977).

Description of these form cues in visual media such as art, photography, and film have been available to us for some time and it has been traditional in aesthetic and literary criticism to study the contribution of form to meaning. What has not been carried out in either the humanities nor the social sciences is a systematic description of the patterns of usage, in other words, the codes, in various visual media. I believe that with current micro computer technology this can be accomplished. For instance, the pattern of usage, or the code for plot development varies from theater to cinema to television. A study which compares and contrasts the usage of plot development in these three visual media would accomplish two things. First, it would allow us to evaluate the contribution of codes from theater and film to TV, and secondly, it would allow us to describe the unique contribution of TV to plot development. Consider similar comparative analysis to uncover the codes of suspense used in art, photography and film or the codes of dialogue suggested by photography and applied in film and television. Such comparisons would yield a clearer understanding of the unique visual characteristics of these media.

Calls for the study of coding in visual media have come recently from Wilbur Schramm (1977), Gavriel Salomon (1979), and Howard Levie (1978) among others. In his work on symbolic codes, Levie discussed

the relationship between pictorial codes and mental operations and suggests that future visual literacy study focus on this relationship.

Suggestions for the study of coding, however, have been borrowed from the area of semiotics, which has been called a general science of treating "sign systems". (deSaussure, 1966). Since visual media are generally thought to be sign systems they are ripe for semiotic analyses. This analysis attempts to describe the unknown parameters of a sign system, such as photography, by close observation of the existing medium (Barthes, 1977). Basic objectives of this type of anlaysis call for a logical description of the codes and signs that give meaning to the system. These codes and signs must be observed from the inside of the existing medium. One must understand how they are used and what they contribute to the whole system. Some current semiological research in the visual media has been carried on by Metz (1974) and Bettitini (1973) in cinema, by Umberto Eco (1976) in television and by Roland Barthes in printed text and other media (1977). Each of these researchers, if they may be so called, are structural analysists, following a time honored literary tradition of "reading text". In most cases here they give readings of media and describe with precision their meaningful units. Social scientists have long eschewed the methods subjective criticism, in which these analysists engage because it does not provide verification nor generalizability. Semiotic theory, however, is too rich for us to ignore. Methods of observation already established in the social sciences can be applied, I believe to semiotic analysis.

Given the problem of comparing specific codes among two or three

visual media, observation techniques could be developed. Form cues could be categorized and prioritized and then submitted to a panel of experts for a validity check. Observers could be given similar training to reduce bias. Computer assisted programs could be written for the observers to check the appearance, frequency and duration of form cues.

Observers could analyze with the assistance of the computer the same medium at the same time and a reliability check could be run on their recording. Finally, patterns or codes would emerge and again the computer could help not only with the analysis but with visual displays of these codes.

Analysis of codes and their contribution to the meaning in visual media is only one part of semiotic analysis, but is the only aspect of that analysis that I am addressing here. It must be understood that codes only exist within and because of a communication. It would be foolish to study the pattern of shots (long, medium, close up) which emerge in a random selection of film or TV. Yet, to study the patterns which emerge when suspense, or plot advancement, or dialogue occur would net meaningful information. Those studies which deal with coding or unpacking meaning through the study of form, I have loosely classified as Gestaltists studies. Some current theorists and researchers address coding issues in various visual media. In 1975 Zakia (1975) suggested the use of some classic gestalt principles namely similarity, proximity, closure, and continuity, as codes in photography.

A current study in progress at the University of Wisconsin-Madison

investigates the concept of closure as a code in photography.

Niko Metallinos (1979) in his recent article on television suggests the study of asymmetry, main direction, magnetism, attraction of mass, figure/ground relationship, closure and vectors as codes operating within the TV frame.

Television is also the subject of two current studies at the University of Wisconsin-Madison. One study is attempting to describe the codes used in the audio track of TV news programs while the other is considering plot codes present in TV drama.

Additional hypotheses can and have been posed about visual codes used by novices in production. Howard Levie has indicated the desirability of such an approach when he said that "even though the ability to interpret a code is not usually dependent upon being able to produce it, production may be an excellent avenue to a richer understanidng of the process" (Levie, 1978, p. 34). Worth and Adair (1972) in a now famous study with Navajo Indians asked questions about which compositional style novices would use when asked to tell a story with film. They found that native narrative styles used to tell existing Navajo myths and stories emerged in film composition. In fact certain grammatical structures were transferred intact to film composition. It was disclosed then that codes of storytelling, narrative codes that were embedded in Navajo tradition, dominated the new medium. Codes from another medium (storytelling) supplied some of the infrastructure of the new medium, film.

A study similar to the Worth and Adair study was conducted by

ethnomethodologists Beryl Bellman and Bennetta Jules-Rosette (1977) in Africa. They asked approximately the same questions of natives selected from two African communities in Liberia and Zambia. Questions about compositional style of novices were posed. Video cameras were given to the selected participants who then created their own stories on tape. Traditional narrative codes which appear in the oral literature of both of these tribes were transferred to the composition of videotape. As with the Navajo's, their compositional style was narrative. When Bellman and Jules-Rosette conducted this same study, by the way, with American TV production novices, it was found that their dominant compositional style was dramatic, not narrative. The value to us, however, of both the Navajo and African studies can be found in the methods. Both studies developed methods for reading motion visuals, for describing form cues and their patterns of usage, their codes. In fact, Bellman and Jules-Rosette gave a detailed reading of the motion cues contained in the narrative style of videotaping. Patterns which emerged on the tapes were extensive use of panning for establishing shots, slow panning throughout, an absence of zooms (wheras Americans used the zoom), use of dollying and use of hesitations. What they are describing for the first time are codes of narration in documentary videotape.

I have attempted here to suggest a research method for the analysis of form cues and their codes in visual media. Descriptions of patterns which emerge from observation of these existing visual media will, I believe, allow us not only to articulate the contricution of codes to

the meaning of the visual communication, but will give us more control over the proper design of visuals for communication with these media.

Bibliography

Arnheim, R. Visual Thinking. Berkeley: University of California Press, 1969.

Barthes, R. Elements of Semiology. Translated by Annette Lavers and Colin Smittz. New York: Hill and Wang, 1977.

Bellman, B. and Jules-Rosette, B. A Paradigm for Looking: Cross Cultural Research with Visual Media. Norwood, N.J.; Ablex Publishing Corp., 1977.

Bettitini, G. The Language and Technique of the Film. The Hague: Mouton, 1973.

Bloomer, C. Principles of Visual Perception. New York: Litton Ed. Publishers, 1976.

de Saussure, F. Course in General Linguistics 1906-1911. New York: McGraw-Hill, 1966.

Eco, U. A Theory of Semiotics. Bloomington: University of Indiana Press, 1976.

Gibson, E. Principles of Perceptual Learning and Development. New York: Merideth Corp., 1969.

Kennedy, J. M. A Psychology of Picture Perception, San Francisco: Jossey-Bass, 1974.

Langer, S. K. Mind: An Essay on Human Feeling (Vol. 1). Baltimore: The Johns Hopkins Press, 1976.

Levie, J. "A Prospectus for Research on Visual Literacy" ECTJ, Vol. 26 No. 1 Spring 1978, pp. 25-35.

Metallinos, N. "Composition of the TV Picture. Some Hypotheses to Test the Forces Operating Within the Television Screen." ECTJ. Vol. 27, Fall 1979, pp. 205-214.

Metz, C. Film Language: A Semiotics of the Cinema. Translated by Michael Taylor. New York: Oxford University Press, 1974.

Monaco, J. How to Read a Film. New York, Oxford University Press, 1977.

Olson, D. E. (ed.) Media and Symbols. Seventy-third Yearbook of the National Society for the Study of Education; Chicago, University of Chicago Press, 1974.

✓Schramm, W. Some Notes on Research, Theory and Production in Instructional Television. Agency for Instructional Television, 1977.

Solomon, G. Interaction of Media Cognition and Learning. San Francisco, Jossey-Bass Publishers, 1979.

Wilson, J. A. R., Robeck, M. C., Michael, W. B., Psychological Foundations of Learning and Teaching. New York; McGraw-Hill, 1969.

Worth, S. and Adair, J. Through Navajo Eyes: An Exploration in Film Communication and Anthropology. Bloomington: Indiana University Press, 1972.

Zakia, R. D. Perception and Photography. Englewood Cliff, N.J., 1975.